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PACKAGING

THE CAHNERS MAGAZINE FOR DECISION-MAKERS/MAY 1987

Seagram's Policy: 'Zero Defects'

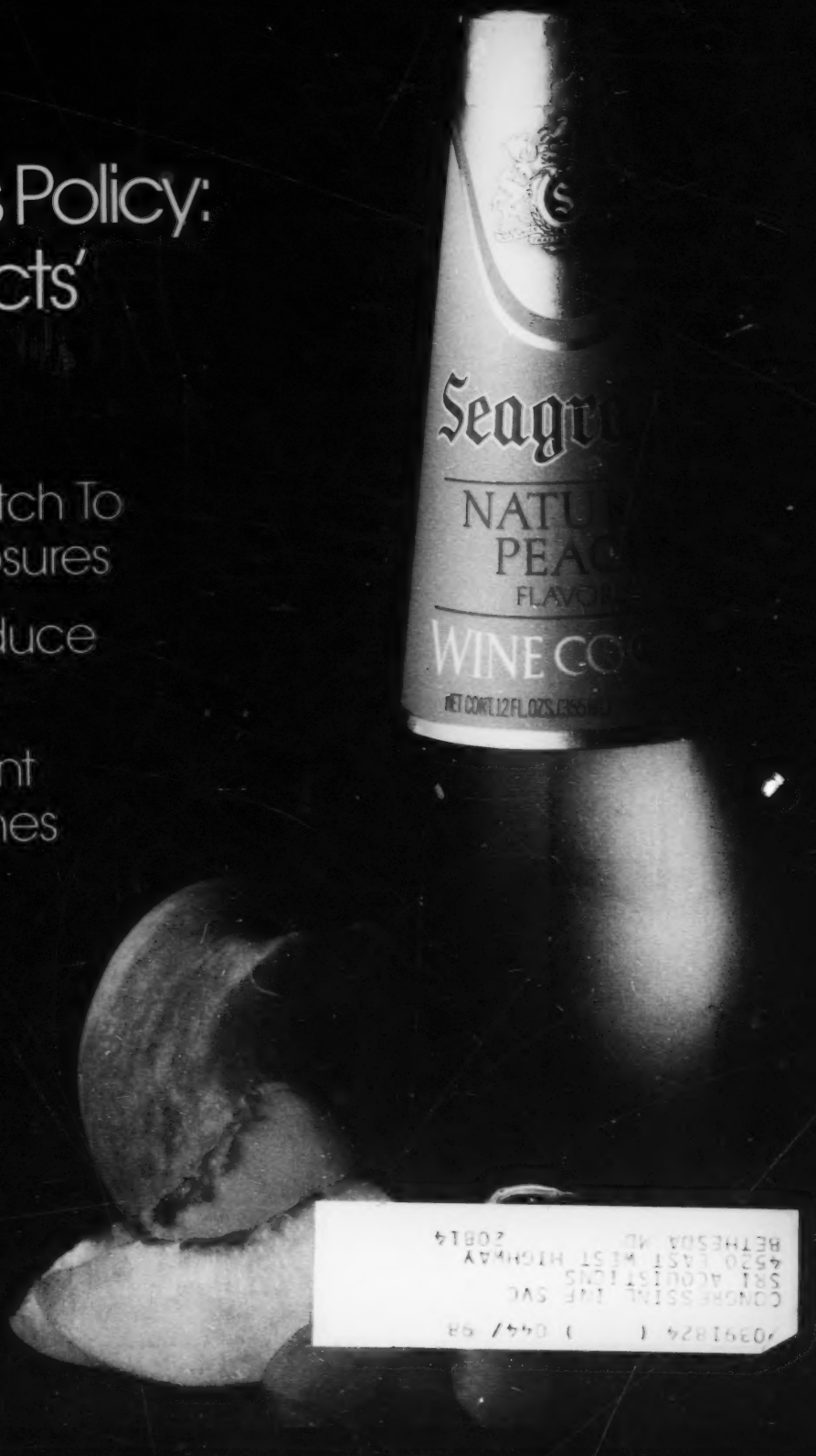
Execs Look For Innovations

Big Names Switch To Dispensing Closures

21 Ways To Reduce Line Accidents

Packagers Want Simple Machines

How To Get Peak Output



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RETORTABLE PLASTICS WORTH $320MM BY 1991

Unit sales to hit 4.7 billion by same time

Sales of retortable rigid plastic containers for shelf-stable food products will reach 4.7 billion units, worth nearly $320 million by 1991, according to Charles H. Kline & Co. Inc., Fairfield, N.J.

More than 75 per cent of these cans, jars, trays and tubs will be used to package new specialty food products that require no refrigeration and can be microwaved. The remainder will find uses for traditional food products at the expense of glass jars and metal cans in selected retort applications.

According to the report, "Retortable Plastic Containers," new specialty foods will consume roughly $240 million of retortable plastic containers by 1991. Likely products packaged in these containers include meat entrees, pastas with sauce, complete dinners and side dishes. Existing retorted food products, such as baby food and soup products, will garner an additional $80 million.

Initially, plastic cans are forecast to grow faster than thermoformed trays and tubs because of the suitability of existing metal and glass container filling and retort lines. However, the report predicts tubs and trays will surpass plastic cans beginning around 1990 due to their lower relative cost and increased functionality as serving containers. By 1991, the study predicts, thermoformed tubs and trays will account for 46 per cent of total dollar sales for retortable rigid plastic containers.

PET CONTAINER DEMAND TO GROW 45% ANNUALLY

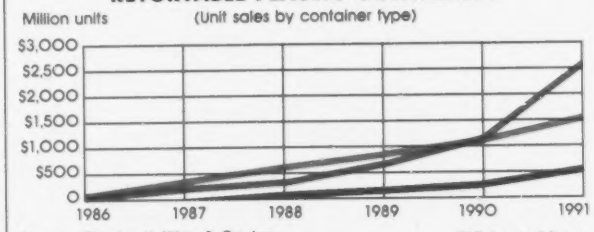
PET containers nearing "second burn"

PET container production for food, alcoholic beverages and personal care/medical products, currently estimated at 840 million units in 1986, will grow at an annual rate of 45 per cent, hitting 5.3 billion units by 1991.

According to Charles Minarik, vice president of marketing for Sewell Plastics Inc., Atlanta, one of PET's few obstacles to food container growth is barrier-enhancement demands of hot-filled products. "PET coated with PVDC is a near-term answer to barrier problems associated with some products," he said. "We believe post-coating for barrier is an interim step to barrier-enhanced PET."

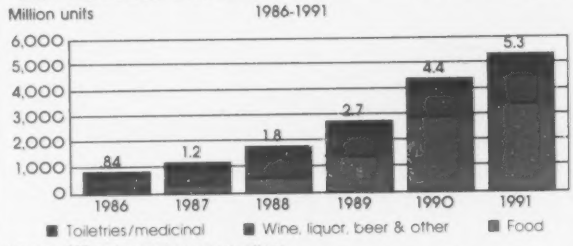
PET's "second burn" into the food container market will include PET containers for coffee, peanut butter, salad dressings and juice drinks, among other products.

RETORTABLE PLASTIC CONTAINERS



Source: Charles H. Kline & Co. Inc.
Tubs and trays will lag can sales but are forecast to lead all retortable plastic containers by 1991.

PET CUSTOM CONTAINER DEMAND BY INDUSTRY



Source: PET resin producer projections
PET containers are forecast for increased growth between 1989 and 1991

PACKAGING LEADTIMES (in weeks)

	Mar. '87	Feb. '87	Mar. '86
Metal cans	3.4	3.5	4.7
Composite cans	3.4	4.4	4.9
Glass containers	4.1	4.0	4.8
Plastic bottles	3.6	3.8	4.0
Plastic film	4.0	4.0	4.1
Laminates	4.5	5.5	4.9
Corrugated containers	2.9	2.9	3.1
Multiwall bags	4.7	4.4	3.9
Kraft paper	3.5	3.0	3.3
Folding cartons	4.2	3.9	3.7
Fiber drums	3.1	3.0	3.8
Industrial crates	2.9	3.3	3.7
Strapping	2.6	2.6	2.7
Steel drums (shipping)	3.0	3.7	3.8
Pallets	2.6	2.8	2.8

Source: Purchasing, a Cahners publication

TRANSACTION PRICES

	Mar. '87	Feb. '87	Mar. '86
Aluminum can stock ($/lb.)	1.10	1.08	1.00
LDPE/liner($/lb.)	.28	.29	.33
LDPE/clarity($/lb.)	.33	.33	.37
LLDPE/butene($/lb.)	.28	.28	.32
LLDPE/octene($/lb.)	.34	.35	.38
HDPE/blow molding($/lb.)	.32	.32	.34
HDPE/film grade($/lb.)	.35	.35	.37
Polystyrene/general purpose($/lb.)	.40	.37	.34
Polystyrene/impact($/lb.)	.43	.39	.38
PVC/general purpose($/lb.)	.32	.32	.32
PP/homopolymer($/lb.)	.36	.36	.37
PP/copolymer($/lb.)	.46	.46	.47
ABS($/lb.)	1.03	1.01	1.01
Unbleached kraft/shipping sack($/ton)	430	450	390
Unbleached kraft/grocery sack($/ton)	400		285
Linerboard, 42 lb. east($/ton)	350	350	260
Linerboard, 42 lb., west($/ton)	350	350	260
Corrugated med., semichemical($/ton)	320	320	245
Recycled folding boxboard, clay coated($/ton)	400	400	375
Recycled folding boxbd., chipbd.($/ton)	310	310	290
Bleached kraft, folding carton($/ton)	545	545	545

Source: Purchasing, a Cahners publication

PACKAGING IMPORTANT TO NEW FOOD BUYS

Younger shoppers will shun unappealing packages

Food shoppers generally agree that packaging plays an important role in locating their supermarket purchase selections, according to a recent study conducted by The Berni Corp., Greenwich, Conn.

Study participants also tended to agree that they might try a new product because the packaging appealed to them. Younger consumers, aged 20 to 35, were stronger than other age groups on this issue.

Younger consumers also stated that they were significantly more likely to avoid trying a product because the packaging did not appeal to them. However, when it comes to purchasing products with regularity, consumers overall are not apt to buy it on packaging alone.

Further information on the Supermarket Attitude/Behavior Study is available from The Berni Corp., 666 Steamboat Road, Greenwich, Conn. 06830.

MORE STATS . . .

Negotiations in the folding carton industry in 1986 produced an average straight-time hourly increase of 2.6 per cent, or 26 cents an hour, according to a recent report published by the **Paperboard Packaging Council** . . . The **PPC** also reported a preliminary dollar volume for 1986's folding carton shipments at nearly $3.5 billion, 2.5 per cent higher than 1985 and an all-time record for the industry . . . Resin sales for blow-molded containers will increase an average of 5 per cent through 1990, according to "Blow Molding Update," published by **Business Communications Co Inc.**, Norwalk, Conn . . . Shipments of corrugated and solid fiber products in January were up 0.7 per cent over January 1986 and represent a record high for the month, the **Fibre Box Association** reported. January's containerboard consumption was 1.85 million tons.

SPECIAL REPORT

By R. Bruce Holmgren
Editorial Director

MACHINE SIMPLICITY TOPS USERS' WANTS

"Simplicity of changeover" wins big, over diagnostics, robotics, PACKAGING's own queries reveal

At world class packaging shows such as Pack Expo, the trend-setters get most of the attention—for example, robotics, advanced diagnostics, state-of-the-art electronics. The glare of publicity eludes a wide array of basic, functional, problem-solving machines of all types. In spite of the glamour and excitement surrounding the first group, it is the second and much larger group that makes the wheels go around for most of the packaging field.

Therefore, the results of PACKAGING's recent probing of machinery users hardly come as a surprise. Rather, they tend to confirm what many participants and observers of the packaging scene have long believed.

BUYERS EXPECT MACHINES TO LAST

Regardless of what packaging managers and financial executives say about how long it takes to justify any machine, our queries reveal that most users expect to keep a machine running a very long time.

A sampling of the comments received from many major USA firms suggests that those expecting a life of five years or less are in a minority.

Cited far more often is a life of 10 years or more, and a surprisingly high number expect machines to last 15 or more years.

SELECTION FACTORS: MIXED RATINGS BY SMALL, MEDIUM-SIZE AND LARGE PLANTS

Per cent rating each factor "extremely important"

Employees:	Less than 100	100 to 249	250 or more
Simplicity of changeover	48%	57%	48%
Ability to clean without disassembly	39	38	20
Price	39	24	12
Clean-up/changeover without tools	36	29	20
Ability to handle a wide range of materials/containers	29	24	24
Extra guarding for safety	25	29	12
Special or unusual space limitations	23	14	12
Diagnostic panel lights	16	19	16
Memory capability to recall control settings	16	19	20
Self-cleaning	16	9	8
Built-in programmable controllers	14	24	36
Maximum speed	14	24	36
Multi-purpose or monobloc machines	14	24	24
As open a construction as possible for accessibility	10	19	24
Diagnostic alpha-numeric, easy-to-read message displays	10	24	8
Vision systems/automatic inspection	9	5	16
Single-purpose machines	8	10	4
Automatic adjustment via computer	7	14	4
Automatic, computer-guided changeovers	7	10	8
Diagnostic flow chart or road map type of presentation	4	14	4

For example, are robotics and other forms of "high tech" winning widespread acceptance on today's packaging lines? They clearly are not, according to our survey.

As the accompanying charts show, we roughly calculated from the responses to our inquiries that only 4 per cent of small plants and about 28 per cent of the largest ones currently use robotics on any packaging machinery. Further, barely 7 per cent of small plants and 24 per cent of the large ones plan to buy any equipment with robotics over the next two years. Looking at the upbeat side of this, however, a fourth to nearly a third of plants we contacted are into or seriously moving toward robotics.

So much for all the talk about robotics which we have been hearing a lot about wherever packaging line managers and engineers meet. What about some of the other talked-of shifts to packaging-line improvements, such as inspection?

Inspection: which way?

This is another controversial area. On every side, regardless of product or package, reports tell us of the growing emphasis on consistent, even 100 per cent, inspection as a way of assuring the quality of what goes out. The question focuses on hand vs. automatic inspection, with due regard for the speed at which the inspection takes place. Even the largest plants, running at the highest speeds, do more hand inspecting than one might expect.

Of the latter, based on our pen-scratching, yellow-pad math, while 72 per cent are inspecting at 200 a minute or more, only 20 per cent currently use automatic inspection. We project (in other words, guess) that by 1989, this figure will jump only to 38 per cent.

Viewing the inspection issue from another perspective, we see that only 9 per cent of the small plants rate vision systems and automatic inspection as extremely important. For medium-size plants the figure drops below 5 per cent, and rises only to 16 per cent in large plants.

Diagnostics pro and con

Moving to another area of packaging operations, that of diagnostics, the picture is less clear. This is because of the varying levels of sophistication in the equipment and methods used with packaging-machine diagnostics. Just the same, the respondents positioned even the simplest of diagnostics no higher than 24 per cent, and with even lower rating on other features. For all practical purposes, diagnostics are near the bottom of the barrel.

All of the foregoing negative commentary to the contrary not withstanding, our inquiries among a number of users reveal that the responding companies spent a lot of money during 1986 and are doing likewise in 1987. Some 28 per cent of the largest respondents will spend in excess of $500,000 each.

As the chart shows, in all three breakdowns by plant size, some are spending more, some less, and others

When users plan new lines, such factors as "simplicity of changeover" claim top priority. Provision for advanced diagnostics or for robotics is way down.

Plants of large, national firms often stress simple machinery

the same in 1987 as in 1986. This raises the next question: given industry or product spectrum.

Machine decision factors

If those surveyed are not looking for robotics or "high tech" or are not stepping up their level of inspection sophistication, just what does interest them and just what are they buying or planning to buy?

We get our answers from a look at the factors they list as "extremely important." For all three size groups, "simplicity of changeover" ranked at the head of the list. "Ability to clean without disassembly" ranked second for the small and medium-size installations, with "clean-up and changeover without tools" and "ability to handle a wide range of materials or containers" not far behind.

From this the conclusion is inescapable that today's packaging lines must handle a range of product and package variations. It seems that the dedicated line is becoming an endangered species, except in a limited number of situations.

In this context, yet another aspect of the survey is its finding what proponents of long-range planning are in a minority. We show on our chart that about 14 per cent say they are planning five or more years ahead. In contrast, 20 to 43 per cent plan just one year ahead, while 29 to 37 per cent plan two years ahead.

Plant's choices—in context

While the charts provide a cross-section, they also are a generalized presention. To move from the generalities and the cumulative effect they offer, a look at a representative sampling of the survey responses reveals a different perspective.

The following paragraphs note the responses by particular plants, to let you evaluate both their actions and their plans in the context of a

Top speed—but no robotics

A Western plant of a major national food processor is spending $1 million or more on machinery during 1987. It is shifting fom 25 to 50 per cent automatic inspection.

It uses no robotics and does not plan to add any. It inspects at all speeds up to 300 or more a minute.

Factors it calls "extremely important" include maximum speed, simplicity of changeover—as well as a full array of diagnostics, automatic adjustment via computer, and memory capability to recall settings. Yet it is neutral on cleaning without disassembly, on open construction—and is in the middle on vision systems.

Have robotics, seek more

A well-known over-the-counter and ethical pharmaceutical products maker plans to spend half a million dollars at a plant employing over 1,000 people. It has robotics and plans to add more. Yet it is moving from 95 to 50 per cent human inspection, even though its inspection rates are from 100 to 300 per minute.

While it considers automatic, computer-guided changeovers "not important," it regards vision systems, memory capability to recall control settings, and diagnostic panel lights as "extremely important."

Automatic inspection up

A Northeastern plant of a large soap and toiletries manufacturer is spending $1 million or more this year, does have robotics and seeks more equipment using robotics. It has more than 250 employees, and while it inspects at speeds to 300 or more a minute, its percentage of automatic inspection will go from 10 to 40 per cent in two years. Of all the "extremely impor-

IN 1987, SOME ARE SPENDING MORE, OTHERS LESS

Will your 1987 packaging machinery expenditures be more, the same or less than your 1986 expenditures?

Employees:	Less than 100	100 to 249	250 or more
More than 1986	36%	29%	28%
The same as 1986	38	33	32
Less than 1986	22	38	40
No response	4	—	—

SOME FIRMS SPEND NOTHING, OTHERS $1 MILLION OR MORE

What was your total expenditure for packaging machinery in 1986? What do you anticipate your 1987 packaging machinery expenditures will be?

Employees:	Less than 100		100 to 249		250 or more	
	1986	1987	1986	1987	1986	1987
Nothing	21%	19%	—	—	4%	4%
Less than $10,000	32	19	5	5	4	4
$10,000 to $24,999	13	14	5	—	4	4
$25,000 to $49,999	12	21	—	14	12	12
$50,000 to $99,999	7	9	19	9	4	12
$100,000 to $499,999	10	13	43	47	44	48
$500,000 to $999,999	3	—	—	5	16	20
$1,000,000 or more	1	1	23	10	12	8
No response	1	4	5	10	—	—

MOST USERS DO NOT HAVE ROBOTICS, DO NOT PLAN TO ADD THEM

Do any of your packaging machines currently use robotics?

Employees:	Less than 100	100 to 249	250 or more
Yes	4%	5%	28%
No	96	95	72
No response	—	—	—

Do you plan to purchase equipment using robotics during the next two years?

Employees:	Less than 100	100 to 249	250 or more
Yes	7%	5%	24%
No	87	95	76
No response	6	—	—

MOST PLAN IN TERMS OF ONE, TWO OR THREE YEARS

How far in the future can you plan, allowing for improved, state-of-the-art packaging machinery?

Employees:	Less than 100	100 to 249	250 or more
Years	Per cent	Per cent	Per cent
1	21	43	21
2	29	33	38
3	27	5	25
4	10	5	4
5 or more	13	14	12

WITHIN TWO YEARS, AUTOMATIC INSPECTION WILL NEARLY DOUBLE

At what rate must you inspect?

Employees:	Less than 100	100 to 249	250 or more
Rate per minute	Per cent*	Per cent*	Per cent*
Less than 100 per minute	67	52	40
100 to 199	8	33	24
200 to 299	7	19	32
300 or more	3	19	40

*Percentages vary from 100 because of multiple responses

How much of this inspection currently is automatic vs. human? What will these percentages be two years from now?

Employees:	Less than 100		100 to 249		250 or more	
	Average percentages					
Type of inspection	1987	1989	1987	1989	1987	1989
Automatic	13	23	27	37	20	38
Human	87	77	73	63	80	62

Planners must provide for enough space for such tasks as manual inspection. (tables, benches, space) while everything is still in "early paper" stages.

tant" factors to choose from, it put only built-in programmable controllers in this category. On the other hand, its "not important" factors include vision systems, computer-guided changeovers and self-cleaning.

No robotics here

Even discounting the prospect that packaging and other managers similarly situated respond to our survey with varying depths of feeling, we find an interesting comparison of the preceding plant with one turning out more or less like products—in the Midwest. It has up to 249 employees and will spend up to half a million dollars this year.

It has no robotics and has no plans to acquire machinery that uses any. However, in two years it will go from 75 to 95 per cent automatic inspection. While it monitors individual lines, it favors controls that fit machines into a system.

Interestingly, it regards automatic adjustment by computer as very important but thinks that memory capability to recall control settings is almost not important. Otherwise, it listed the selection factors as either very important or approaching that degree of importance.

Human inspection up

A well-known cosmetics firm with between 250 and 500 employees at a particular plant in a central USA area will spend up to half a million dollars this year, has no robotics and does not plan to get any. Yet it seeks line controls that fit machines into systems and also allow independent operation.

In two years it will move from 95 to 98 per cent human inspection, and is more or less in the middle on diagnostics.

Another cosmetics producer, citing a plant in a different part of the country, has about the same number of employees as in the preceding example and apparently plans to spend about the same amount of money on new machinery during 1987. It, too, has no robotics and does not plan to add any.

However, in two years, it will raise its automatic inspection from 5 to 25 per cent, with its range of inspection remaining in the 200s per minute. Further, its "extremely important" list includes, along with simplicity of changeover (and factors relating to disassembly, accessibility, cleaning, et al) memory capability to recall settings, and with built-in PCs.

Ultimate sophistication

One of the Midwestern plants of a major nationally operating food processor has no more than 50 employees but plans to spend up to half a million dollars this year. It has no robotics but expects to acquire robotics-equipped machinery within two years. It has 90 per cent automatic inspection, at speeds of 300 a minute or higher.

It monitors its machines, entire lines and complete systems, and favors controls that provide comparable versatility. The only factors it called "not important" are simplicity of changeover and ability to handle a wide range.

On the other hand, it listed almost all of the other selection factors as "extremely important" with the exception of automatic adjustment by computer. This suggests a nearly all-out drive for ultimtae sophistication in a relatively small plant for a very large company. However, this plant's location in a rich crop-growing area suggests the company's need to provide peak output from more or less single-purpose plants. ■

R. BRUCE HOLMGREN
Editorial Director

"We are hearing that in spite of much attention on the latest state-of-the-art-advances and the electronic wizardry that are upgrading today's packaging machinery, companies large and small are buying the basics, such as simplicity and ease of use."

PLEASE RATE THIS ARTICLE

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